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ABSTRACT

The Bilingual Reading Study employs several measures of oral language proficiency: (1) a standardized oral language proficiency test, the Language Assessment Scales (LAS): (2) teacher ratings on the Student Operational Language Assessment Scale (SOLA): (3) teacher ratings on the Southwest Educational Development Laboratory (SEDL) Oral Language Proficiency Scale (OLPS): and (4) an ethnographic verification of each child's linguistic capability based on audio tapes of the child in the classroom, on the playground, and at home. In this paper, the reliability and distribution of responses for each measure is presented, followed by a discussion of the relations among the various measures. (BW)

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A LONGITUDINAL STUDY OF THE ORAL LANGUAGE DEVELOPMENT OF TEXAS BILINGUAL CHILDREN (SPANISH-ENGLISH): FINDINGS FROM THE SECOND YEAR

Analysis Procedures and Summary Statistics of the Language Data

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The Bilingual Reading Study (described earlier in Mace-Matluck's paper) employs various measures to assess the oral language proficiency of the students under investigation. The battery includes (1) a standardized oral language proficiency test, (2) three sets of teacher ratings, and (3) an ethnographic verification of the children's language abilities based on audio tapes collected in three different settings. In this paper, the reliability and distribution of responses for each measure will be presented, followed by a discussion of the relations among the various measures. Also, comparisons will be made across time for the 41 children on which data from two successive years have been obtained.

Global Indices of Dominance

One of the primary variables used in the selection of the target children is degree of bilingualism, which is assessed in September by asking teachers to classify each of their students on the Student Operational Language Assessment Scale - SOLA (Duncan & De Avila, 1976). Table 1 presents the distributions of ratings obtained in September 1979 for the 60 target students in District A (a rural and rather isolated school district in the Rio Grande Valley of south central Texas), the 40 children in District B, and the 20 children in District C (both of the latter being districts located some 40 miles from the city of El Paso). For the 41 children from District A who were in their second year of participation in the Bilingual Reading Study, their SOLA classifications for the previous year (September 1978) are also given.

In general, the data from September 1979 indicate that the teachers rated all of these students as Spanish speaking: bilingual (Category 1, 20%); partial bilingual, English dominant (Category 2, 8%); partial bilingual

Table 1

Student Operational Language Assessment (SOLA)
Frequency Count for Grade Levels Within Districts

SOLA (1978) SOLA (1979)

District A

	1	2	3	4	5	6	7
K	5	0	8	0	7	0	0
1	6	0	8	0	7	0	0

	1	2	3	4	5	6	7
K	5	0	5	0	10	0	0
1	4	0	13	0	2	1	0
2	6	2	11	0	0	1	0
	15	2	29	0	12	2	0

District B

	1	2	3	4	5	6	7
K	3	6	2	0	8	1	0
1	2	0	0	0	10	8	0

District C

	1	2	3	4	5	6	7
K	0	2	3	0	5	0	0
1	4	0	5	0	1	0	0
Raw Totals	24	10	39	0	36	11	0
Percentage	20%	8%	33%	0%	30%	9%	0%

SOLA Categories

1 = Bilingual
2 = Partial bilingual, English dominant
3 = Partial bilingual, Spanish dominant
4 = Monolingual English
5 = Monolingual Spanish
6 = Limited English and Spanish
7 = Late language learner

Spanish dominant (Category 3, 33%); Spanish monolingual (Category 5, 30%); and limited in both Spanish and English (Category 6, 9%). Note in particular that none of these children were judged by their teachers to be late language learners. Further, of the 11 children classified as limited in both English and Spanish, 8 of these were made by a single first grade teacher in District B, and we suspect that this reflects the particular teacher's limited experience with this new class of children early in the Fall term, rather than the student's actual oral proficiency.

The distribution of responses itself must not be taken as representative of the students found in the three districts, as target students were selected to represent certain language resources at the exclusion of others.

Comparing the subsample of 41 students in District A, the data suggest a trend toward greater English proficiency, shown by the increase in both English and Spanish partial bilinguals coupled with a decrease in the number of judged monolingual Spanish speakers.

Each district with a bilingual program is required to administer at least one state-approved, commercially-available language test to its entering kindergarten students, and these data were collected for each of the target students participating in the Bilingual Reading Study. All of the districts in last year's cohort had adopted the Language Assessment Scales - LAS (De Avila & Duncan, 1977), and the data from both the English and Spanish version are presented in Table 2.

Here, levels of proficiency in the two languages are combined to form a measure known as Relative Linguistic Proficiency, a procedure suggested by the authors of the test. This index is expressed as a ratio of English proficiency to Spanish proficiency, such that a 5/5 indicates a fully bilingual child; a 5/1, a monolingual English-speaking child; a 3/3, a limited

Table 2

Frequency Count for Language Assessment Scale Values
Converted to SOLA Scale Values

SOLA Converts of LAS RLP Values

	1	2	3	4	5	6	7
K	3	0	0	0	1	0	16
1	2	2	1	1	2	4	9

SOLA Converts of LAS RLP Values

District A

	1	2	3	4	5	6	7
K	1	1	0	2	0	0	16
1	1	0	0	0	3	0	14
2	5	2	5	1	3	0	4

District B

	1	2	3	4	5	6	7
K	2	2	0	5	4	0	6
1	10	1	0	2	7	0	0

LAS levels:

5 = Totally fluent speaker
4 = Near-fluent speaker
3 = Limited speaker
2 = Non-speaking, apparent linguistic deficiencies
1 = Non-speaker, total linguistic deficiencies

District C

	1	2	3	4	5	6	7
K	0	0	0	0	0	0	10
1	0	0	1	0	1	0	7
Raw Totals	19	6	6	10	18	0	57
Percentage	16%	5%	5%	9%	16%	0%	49%

SOLA correspondences to LAS RLP values:

1 = Bilingual (RLP=5/5, 5/4, 4/5, 4/4)
2 = Partial bilingual, English dominant (RLP=5/3, 4/3)
3 = Partial bilingual, Spanish dominant (RLP=3/5, 3/4)
4 = Monolingual English (RLP=5/1, 5/2, 4/1, 4/2)
5 = Monolingual Spanish (RLP=1/5, 2/5, 1/4, 2/4)
6 = Limited English and Spanish (RLP=3/3)
7 = Late language learner (RLP=3/1, 3/2, 2/1, 2/2, 2/3, 1/3, 1/2, 1/1)

speaker of both languages; and a 1/1, a late language learner. These indices were then grouped according to the SOLA classification system to allow a rough comparison of the two measures.

The most striking feature of the data from 1979 concerns the number of children classified by the LAS as late language learners, 49%, as compared with none so rated by their teachers on the SOLA scales.

Looking at the LAS data for the subsample of 41 target students from District A, it, like the SOLA, reveals a trend toward English proficiency, particularly evident for the older children. Note, however, that many of these students are still classified as late language learners by the LAS.

Teacher Ratings of Communication Skill

Teachers rated the target students' proficiency in each language in December (for 1979 only) and in April (for both years) using the SEDL Oral Language Proficiency Scale - OPRS (Mace-Matluck, et al., 1979). This rating is distinct from the SOLA ratings in that the OPRS ratings indicate each child's overall communication skill in the two languages separately, while the SOLA ratings provide a more global language dominance assessment. Reliability for the OPRS can be estimated via correlations between the Fall and Spring ratings, assuming that the constructs measured remain stable over this time period. These correlations are presented in Table 3.

For the English ratings, the correlations range from .76 to .82, suggesting a fairly reliable measure. For the Spanish ratings, the correlations are substantially lower, ranging from .34 to .52. We suspect that these values reflect the restricted range of scores obtained in our sample, and that stronger correlations would obtain with a broader sample.

Table 3
Means, Standard Deviations, and Correlations Between the Fall and Spring Administrations of the SEDL Oral Proficiency Rating Scale

ENGLISH

Measure	N	Fall: Mean	Fall: Standard Deviation	Spring: Mean	Spring: Standard Deviation	r
Pronunciation	110	3.2	1.50	3.4	1.27	.79
Grammar	110	3.0	1.52	3.2	1.27	.76
Vocabulary	110	3.2	1.54	3.3	1.34	.80
Comprehension	112	3.2	1.56	3.4	1.37	.82
Communication Skill	114	3.0	1.60	3.2	1.36	.78

Measure	N	Fall: Mean	Fall: Standard Deviation	Spring: Mean	Spring: Standard Deviation	r
Pronunciation	101	4.4	1.00	4.4	.83	.43
Grammar	101	4.4	1.00	4.4	.83	.52
Vocabulary	101	4.4	1.00	4.5	.78	.49
Comprehension	101	4.5	0.95	4.5	.64	.34
Communication Skill	101	4.5	0.93	4.4	.79	.35

Note: All correlations are significant at .001 level.

Tables 4 and 5 display the results of the OPRS Spring ratings for both English and Spanish. The English ratings for Spring 1980 show a broad range of ability with 46% of the children rated as native or near-native in their English communication skills (levels 4 and 5), and only 11% rated as minimal participants (level 1), with the remaining 43% falling intermediate between these groupings (levels 2 and 3). The trend toward greater English proficiency for older children observed in the SOLA data is also evidenced here, as only 4 students in the first grade in District A in 1979 were rated at levels 4 and 5, but a year later in second grade, 14 students were so classified.

The Spanish ratings for Spring 1980 show the expected large percentage of proficient Spanish speakers: 88% classified as native or near-native ability with none rated as capable of only minimal participation.

Ratings of Taped Interactions

In order to provide an ethnographic verification of each child's linguistic capability, children's interactions were audio taped in three different settings: (1) the classroom (teacher-pupil), (2) the playground (peer-pupil), and (3) the home (family-pupil). As described in the earlier papers, these tapes were transcribed and analyzed in a number of ways by the SEDL research staff. One analysis was the rating of each child's overall communication skill in each language, using the same scale as was used for the teacher ratings. The reliability of this assessment is founded on interrater agreement. Each of three raters independently rated 15 tapes, and high correlations among their ratings, in conjunction with minimal mean differences as shown in Table 6, indicate high interrater reliability.

Table 4

Frequency Count of Teacher Ratings of Overall Communication Skill in English for Grade Levels Within Districts

OPRS-E (1979)

District A

	1	2	3	4	5
K	1	6	8	4	1
1	2	5	10	2	2

OPRS-E (1980)

District A

	1	2	3	4	5
K	5	6	5	3	1
1	1	7	5	4	2
2	0	2	4	9	5

District B

	1	2	3	4	5
K	5	3	1	2	9
1	0	4	3	6	7

District C

	1	2	3	4	5
K	0	2	3	0	4
1	2	2	3	1	0

Raw totals	13	26	24	25	28
Percentages	11%	22%	21%	22%	24%

Categories

1 = Minimal participation
2 = Understands gist of conversation; fragmented uneven production
3 = Participates in most conversation; occasional errors in production
4 = Almost native quality
5 = Native speaker quality

Table 5

Frequency Count of Teacher Ratings of Overall Communication Skill in Spanish for Grade Levels Within Districts

OPRS-S (1979)

District A

	1	2	3	4	5
K	0	3	4	7	6
1	0	1	3	1	16

OPRS-S (1980)

District A

	1	2	3	4	5
K	0	2	0	3	15
1	0	1	7	7	3
2	0	0	2	8	10

District B

	1	2	3	4	5
K	0	0	1	3	16
1	0	0	0	4	8

District C

	1	2	3	4	5
K	0	0	0	1	8
1	0	0	0	3	2

Raw totals	0	3	10	29	62
Percentages	0%	3%	10%	28%	60%

Categories

1 = Minimal participation
2 = Understands gist of conversation; fragmented uneven production
3 = Participates in most conversation; occasional errors in production
4 = Almost native quality
5 = Native speaker quality

Table 6
Means, Standard Deviations, and Correlations for Three Raters
(Based on 15 Tapes)

Rater	Mean	Standard Deviation	Correlations R1	R2	R3
R1	4.3	.84	-	.91	.89
R2	4.2	.94		-	.91
R3	4.2	1.10			-

Table 7 displays, for each type of interaction, the distributions of ratings by grade level for both English and Spanish, and the results can be easily summarized. For those speakers preferring Spanish, their overall communication skill was judged to be native in almost every case (98% in T-P interactions, 95% in P-P interactions, and 94% in F-P interactions). For those speakers using English, the data reveal much more variability in communication skills, especially in the classroom setting, but still show large percentages of native and near-native skill (68% in T-P interactions, 84% in P-P interactions, and 85% in F-P interactions).

Table 8 presents the data collected from English taped episodes on the subsample of students with two years participation in the study from District A. Again, they suggest that English proficiency improves during the time period. In T-P interactions in 1978-79, 43% of those using English in the classroom were rated as native or near-native skilled, while after a year, 67% were so rated. In P-P and F-P interactions, the percentages are stable across the two years, but the small number of interactions makes for a questionable conclusion.

Table 9 presents the data for the same set of children, but for the tapes containing sufficient amounts of Spanish to allow a rating to be made. Again, the data show that for all children using Spanish in any of the three settings, they are judged to be native or near-native skilled.

Comparisons and Correlations Across Measures

The primary purpose for using the three different approaches to language measurement reported above is to accurately and precisely assess each child's oral language development. In Table 10 the means and standard deviations of each of the measures are presented along with their cross scale

Table 7

Ratings of Students' Overall Communication Skill
In English and Spanish Based on Audio Tapes Collected
in Three Different Settings (1979-80 School Year)

English

Overall Communication Skill

Teacher-Pupil Interaction

	1	2	3	4	5
K	0	1	6	8	6
1	0	2	7	11	5
2	0	1	4	12	3

N=66

Pupil-Peer Interaction

	1	2	3	4	5
K	1	0	4	6	13
1	1	0	1	7	8
2	0	1	0	1	6

N=49

Family-Pupil Interaction

	1	2	3	4	5
K	0	0	3	5	10
1	0	0	3	5	8
2	0	0	0	3	3

N=40

Spanish

Overall Communication Skill

Teacher-Pupil Interaction

	1	2	3	4	5
K	0	0	0	0	25
1	0	0	0	1	16
2	0	0	0	0	11

N=53

Pupil-Peer Interaction

	1	2	3	4	5
K	0	0	0	1	35
1	0	0	0	3	38
2	0	0	1	0	17

N=95

Family-Pupil Interaction

	1	2	3	4	5
K	0	0	0	2	35
1	0	0	0	3	35
2	0	0	0	0	13

N=88

Categories
1 = Minimal participation
2 = Understands gist of conversation; fragmented uneven production
3 = Participates in most conversation; occasional errors in production
4 = Almost native quality
5 = Native speaker quality

Table 8

Ratings of Students' Overall Communication Skill in English Based on Audio Tapes Collected in Three Different Settings in Each of Two Successive Years

English

1978-79

Overall Communication Skill

Teacher-Pupil Interactions

	1	2	3	4	5
K	0	3	2	3	1
1	0	6	2	4	3

N=26

Peer-Pupil Interactions

	1	2	3	4	5
K	0	0	1	2	0
1	0	0	0	3	2

N=8

Family-Pupil Interactions

	1	2	3	4	5
K	0	1	2	3	1
1	0	0	0	2	3

N=12

1979-80

Overall Communication Skill

Teacher-Pupil Interactions

	1	2	3	4	5
1	0	2	6	8	2
2	0	1	4	12	3

N=38

Peer-Pupil Interactions

	1	2	3	4	5
1	1	0	0	1	3
2	0	1	0	1	6

N=13

Family-Pupil Interactions

	1	2	3	4	5
1	0	0	3	1	3
2	0	0	0	3	3

N=13

Categories

1 = Minimal participation
2 = Understands gist of conversation; fragmented uneven production
3 = Participates in most conversation; occasional errors in production
4 = Almost native quality
5 = Native speaker quality

Table 9

Ratings of Students' Overall Communication Skill in Spanish Based on Audio Tapes Collected in Three Different Settings in Each of Two Successive Years

Spanish

1978-79

Overall Communication Skill

Teacher-Pupil Interactions

	1	2	3	4	5
K	0	0	0	0	9
1	0	0	0	1	5

N=15

Peer-Pupil Interactions

	1	2	3	4	5
K	0	0	0	2	15
1	0	0	0	1	18

N=36

Family-Pupil Interactions

	1	2	3	4	5
K	0	0	0	1	15
1	0	0	0	0	12

N=28

1979-80

Overall Communication Skill

Teacher-Pupil Interactions

	1	2	3	4	5
1	0	0	0	1	9
2	0	0	0	0	11

N=21

Peer-Pupil Interactions

	1	2	3	4	5
1	0	0	0	1	14
2	0	0	1	0	17

N=33

Family-Pupil Interactions

	1	2	3	4	5
1	0	0	0	0	14
2	0	0	0	0	13

N=27

Categories

1 = Minimal participation
2 = Understands gist of conversation; fragmented uneven production
3 = Participates in most conversation; occasional errors in production
4 = Almost native quality
5 = Native speaker quality

Table 10
Means, Standard Deviations, and Correlations for LAS, OPRS, and Tape Rating Measures

ENGLISH

Measure	N	Mean	Standard Deviation	Correlations: LAS	OPRS	T-P	P-P	F-P
LAS	116	2.5	1.68	-	.76*	.47*	.50*	.26
OPRS	116	3.0	1.60		-	.52*	.59*	.54*
Teacher-Pupil Tapes (T-P)	66	3.8	0.83			-	.42*	.59*
Pupil-Pupil Tapes (P-P)	49	4.3	1.02				-	.48*
Family-Pupil Tapes (F-P)	40	4.4	0.74					-

SPANISH

Measure	N	Mean	Standard Deviation	Correlations: LAS	OPRS	T-P	P-P	F-P
LAS	116	3.0	1.43	-	.25*	-.03	.07	.09
OPRS	114	4.5	0.79		-	.21	.03	-.04
Teacher-Pupil Tapes (T-P)	53	5.0	0.14			-	-.02	-.03
Pupil-Pupil Tapes (P-P)	95	4.9	0.29				-	-.04
Family-Pupil Tapes (F-P)	88	4.9	0.23					-

*Significant at .01 level.

correlation coefficients. The measures of English oral language show moderate coefficients ranging from .26 to .76, and an examination of the means shows that LAS ratings generally tend to be the lowest, followed by OPRS ratings, T-P tape ratings and, P-P and F-P ratings. In Spanish, the correlation coefficients for the most part are zero, and an examination of the means and standard deviations again suggest that this reflects the restricted range of values which occur among the sample.

Summary

The data obtained from the language measures used in the Bilingual Reading Study for the students sampled can be summarized as follows:

1. The standardized LAS values tend to underestimate the relative oral language proficiency of those tested when compared against teacher ratings using the SOLA scales. The effect is more pronounced in Spanish than in English, and for younger than for older students.

2. Teacher ratings on the OPRS are somewhat lower than those obtained on the tape ratings. Both hold that the students under investigation are proficient speakers of Spanish, and both show a trend toward greater English proficiency over time.

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